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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

WILLE, DOUGLAS A

ART UNIT PAPER NUMBER

2814

DATE MAILED: 02/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/068,778

Applicant(s)

PRESTON ET AL.

Examiner

Douglas A Wille

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-- Th MAILING DATE of this communication appears on th cover sh et with th correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) 35-47 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 48 and 49 is/are allowed.
- 6) ☒ Claim(s) 1-9, 22, 25-29 and 31-34 is/are rejected.
- 7) ☒ Claim(s) 10-21, 23, 24 and 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1 – 34, 48, 49, drawn to a device, classified in class 257, subclass 98.
 - II. Claims 35 - 47, drawn to a method, classified in class 438, subclass 29.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the UV curable adhesive could be formed on the transparent insulator.

3. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Gerald Bodner on 12 December 2002 a provisional election was made without traverse to prosecute the invention of I, claims 1 – 34, 48, 49.

Affirmation of this election must be made by applicant in replying to this Office action. Claims 35-47 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the

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application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 2, 18 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. The claims refer to the substrate as being less than 0.005 or 0.006 ohms/cm. This is not understood. Is this an attempt to define the resistivity?

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1 – 3 and 25 - 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spath in view of Hallenbeck et al.

11. With respect to claims 1 and 25, Spath et al. shows (see cover Figure and column 3, line 29 et seq.) a semiconductor active device 9 which can be a LED (column 3, line 35) which inherently has a substrate and a junction and is adhesively bonded to a glass plate 1 (column 3, line 65 and line 37). Note that glass is UV transparent. Spath does not show that the adhesive is UV curable but Hallenbeck et al. show a similar device (see cover Figure and column 3, line 25

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et seq.) where the substrate is attached with a UV curable adhesive (column 4, line 23). It would have been obvious to use the Hallenbeck et al. method of attachment since it is known to work. Note that the method of curing is not a structural feature and carries no weight in claims drawn to a device.

12. With respect to claim 2, it would have been obvious to select a low resistivity substrate to reduce the voltage drop.

13. With respect to claim 3, it would have been obvious to select any thickness for the substrate as a design alternative.

14. With respect to claims 26 and 27, it would have been obvious to select any thickness as a design alternative.

15. Claims 4 – 9, 22, 31 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spath in view of Hallenbeck et al. and further in view of Kadota.

16. With respect to claim 4, the emitter is not identified by the basic references but Kadota shows (see cover Figure and column 2, line 38) a GaN LED (column 2, line 41) with layers 3, 4 and 5 which all perform a buffering function. It would have been obvious to use the Kadota device as the emitter since it is known to be functional.

17. With respect to claim 5, layer 5 is GaN and it would have been obvious to use Si as a dopant since it is known in the art.

18. With respect to claim 6 it would be obvious to select any thickness as a design alternative.

19. With respect to claims 7 and 22, layer 9 is p-GaN and since it is a contact layer it would have been obvious to use a high doping level.

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20. With respect to claims 8 and 9, it would have been obvious to select any thickness as a design alternative.

21. With respect to claim 31, the Kadota substrate is Si.

22. With respect to claim 34, 450 nm is within the emitting range of the GaN system and the selection of an operating wavelength is a design choice.

23. Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spath in view of Hallenbeck et al. and further in view of Justel et al.

24. Justel et al. show (see cover Figure and column 2, line 62) that a phosphor can be used to provide white light from a UV diode such as GaN (column 2, line 66 and column 3, line 30). It would have been obvious to use the Justel et al. phosphor to provide a white light emitting diode to expand the operating wavelengths available.

25. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spath in view of Hallenbeck et al. and further in view of Takeya et al.

26. The basic references do not show the contact material but Takeya et al. show that the p-contact for GaN can be Pt and Au. It would have been obvious to use these materials since they are known to be functional and to select any thickness as a design alternative.

Drawings

27. The drawings are too faint to be useful and Figure 4b shows a P+ region which should be an N+ region.

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Allowable Subject Matter


28. Claims 10 – 21, 23, 24 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
29. The prior art does not show passivation layers between the substrate and the adhesive, isolation trenches, a shorting ring, an interconnect beam or a specific threshold voltage.
30. Claims 48 and 49 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas A Wille whose telephone number is (703) 308-4949. The examiner can normally be reached on M-F (6:15-3:45).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703) 308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


Douglas A. Wille
Patent Examiner

January 22, 2003